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PATENT



SPECIFICATION

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PROVISIONAL SPECIFICATION.

**An Improved Charge for Multi-charge Guns.**

We, Sir HIRAM STEVENS MAXIM, Knight, of 383, Norwood Road, West Norwood, London, S.E., and CLARENCE CHRISTOPHER COLLEY, Major, R.A., of Royal Artillery Mess, Woolwich, London, S.E., do hereby declare the nature of this invention to be as follows:—

5 This invention relates to an improved charge for multi-charge guns and while it is particularly intended to be employed upon aircraft in operations against hostile aircraft it will be understood that it may, if desirable, have a more widely extended field of utility.

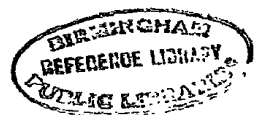
10 The invention consists in a charge for a gun of the above character comprising a plurality of projectiles connected to form a column so that they may be inserted simultaneously within the gun.

In carrying our invention into effect in one convenient manner we provide a charge comprising a number of projectiles of suitable form connected together so as to form a column or stick of projectiles which may be inserted  
15 as a whole within the barrel of the gun with the projectiles lying one behind the other and in connection with such we provide firing mechanism upon the gun of such a character that the projectiles may be launched in succession from the gun, the firing mechanism being arranged so that the trigger pull must be operated each time a projectile is to be fired or, if desired, the  
20 mechanism may be such that by keeping the trigger pull in its operative position the projectiles may be fired one after another automatically.

In one convenient construction the projectiles which may be of the shrapnel or high explosive type or a combination of both types or of any other suitable form are connected by cylinders or sleeve like members, one end of which  
25 is attached by screwing or otherwise to the base of one projectile while the other end is adapted to fit over the front portion of the projectile next behind in succession, the rear end of such tubular or sleeve-like member being conveniently adapted to butt against a shoulder or the like formed on the projectile.

30 Each sleeve-like member connecting adjacent projectiles is provided with one or more driving bands and serves as the container for the propellant charge for that projectile to which it is secured by screwing or otherwise. The arrangement is such that on firing the propellant charge for the first projectile of the series the projectile is propelled forwardly carrying its sleeve-like member with it which serves as a tail or directing member for the projectile and which on explosion of the propellant charge is expanded radially  
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[Price 6d.]



so that the driving bands engage with the rifling which may be provided for a suitable length in the forward part of the gun-barrel.

Each projectile of the series may be provided with a fuse of suitable form and with fulminate pellets when necessary contained either in a cloth container or between wads of cork or arranged in any other desired manner, and each shell may be fitted with a central fuse or flash tube and with a second tube concentric therewith so that in the annular space between the two tubes a magnesium fuse or other tracing composition may, if desired, be inserted.

It will be understood that the foregoing details of construction are given by way of example only, and the invention is not to be confined to any particular form of the individual projectile forming a unit of the connected charge for each gun.

Dated this 6th day of April, 1916.

MARKS & CLERK.

### COMPLETE SPECIFICATION.

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#### An Improved Charge for Multi-charge Guns.

We, Sir HIRAM STEVENS MAXIM, Knight, of 383, Norwood Road, West Norwood, London, S.E., and CLARENCE CHRISTOPHER COLLEY, Major, R.A., of Royal Artillery Mess, Woolwich, London, S.E., do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to charges for multi-charge guns of the kind comprising a series of projectiles arranged one behind the other and in axial alignment with one another and propellant charges located between the projectiles.

The object of the present invention is to provide compact and readily handled charges of this character and the invention consists in a multi-charge of the kind referred to in which each projectile is formed or provided with a rearwardly extending sleeve or cylinder adapted to fit over the projectile next behind in succession.

The accompanying drawing illustrates in sectional elevation one mode of carrying out the invention.

In carrying our invention into effect in the convenient manner illustrated, we form our improved multi-charge from a number of projectiles *a* which may be of the shrapnel or high explosive type or, as shown, a combination of both types having high explosive *b* and a ring of balls *c*, or of any other suitable form, and we connect the projectiles by cylinders or sleeve-like members *d*, one end of which is formed in one with or attached by screwing or otherwise to the base of one projectile while the other end is adapted to fit over the front portion of the projectile next behind in succession, the rear end of such tubular or sleeve-like member being conveniently adapted to butt against a shoulder or the like *e* formed on the projectile. The member *d* of or in connection with the last of the series of projectiles may be closed by a wooden or other plug *h* to retain the propellant for that projectile.

Each sleeve-like member connecting adjacent projectiles is provided with one or more driving or positioning bands *f* formed therewith or separately therefrom and serves as the container for the propellant charge *g* for that projectile with which it is formed or to which it is secured by screwing or otherwise. The arrangement is such that on firing the propellant charge for the first projectile of the series (for example, from a suitable primer through the flash holes *h*) the projectile is propelled forwardly carrying its sleeve-like

member with it which serves as a tail or directing member for the projectile and which on explosion of the propellant charge is expanded radially so that the driving bands engage with the rifling which may be provided for a suitable length in the forward part of the gun barrel.

- 5 Each projectile of the series is provided with a fuse  $k$  of suitable form and arranged within a tube  $l$  so that its rear end is in communication with the propellant charge for such projectile, so that the firing of the propellant charge of the first projectile ignites the fuse composition  $k$  of the projectile next behind, with the result that the ignition is transferred to the propellant
- 10 of such projectile and so on automatically throughout the whole series. Each projectile may also be provided with fulminate pellets  $m$  contained either in a cloth container or between wads of cork or arranged in any other desired manner for detonating the high explosive, and each shell may be fitted with
- 15 a tube  $n$  concentric with the tube  $l$  so that in the annular space between the two tubes a magnesium fuse or other tracing composition  $o$  may, if desired, be inserted, such composition being ignited by the propellant and serving to show the path of the projectile, for example, at night, and also serving after a given time to ignite the fulminate  $m$ .

- It will be understood that the foregoing details of construction are given by
- 20 way of example only, and the invention is not to be confined to any particular form of the individual projectile forming a unit of the connected charge for each gun, nor do we desire that the invention should be confined to any particular number of projectiles forming a charge.

- Having now particularly described and ascertained the nature of our said
- 25 invention and in what manner the same is to be performed, we declare that what we claim is;—

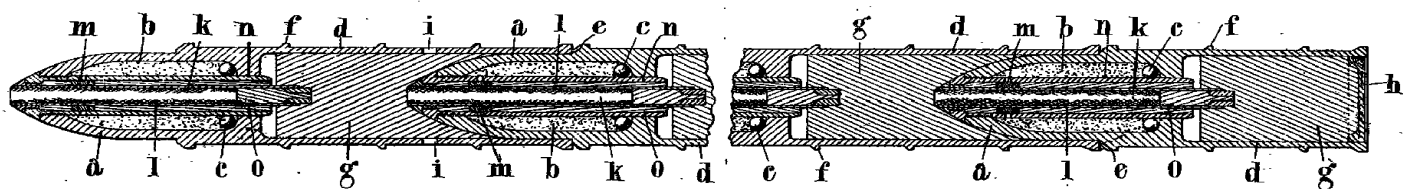
1. A charge of the type referred to for multi-charge guns comprising a series of projectiles, each of which is formed or provided with a rearwardly extending sleeve or cylinder adapted to fit over the projectile next behind in
- 30 succession, substantially as described.

2. A charge for multi-charge guns as claimed in Claim 1, in which the ignition from the forward projectile is automatically transferred to the other projectiles in succession, substantially as described.

3. An improved charge for multi-charge guns substantially as described and
- 35 as illustrated in the accompanying drawing.

Dated this 6th day of November, 1916.

MARKS & CLERK.



[This Drawing is a reproduction of the Original on a reduced scale.]

[This Drawing is a reproduction of the Original on a reduced scale.]

